

I. AMENDMENTS

IN THE CLAIMS

Please enter the amendment to claims 5, 7-9, and 12, as shown below.

Please enter new claims 58-70, as shown below.

1.-4. (Withdrawn)

5. (Currently Amended) A nucleic acid present in other than its natural environment, wherein said nucleic acid comprises a nucleotide sequence encoding a ~~glycosyl sulfotransferase-4α~~ (~~GST-4α~~) glycosyl sulfotransferase-4 (GST-4) polypeptide, wherein said ~~GST-4α~~ GST-4 polypeptide comprises an amino acid sequence that is at least 85% identical to the amino acid sequence set forth in SEQ ID NO:08.

6. (Previously Amended) A nucleic acid according to Claim 5, wherein said nucleic acid comprises a nucleic acid sequence that is substantially identical to or the same as the nucleotide sequence of SEQ ID NOS: 01, 02, 03, 04, 10 , or 11.

7. (Currently Amended) A fragment of the nucleic acid according to Claim 5, wherein said fragment encodes a polypeptide that catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

8. (Currently Amended) An isolated nucleic acid that hybridizes at 50°C or higher in a solution of 15 mM NaCl and 1.5 mM sodium citrate to ~~the a nucleic acid comprising a nucleotide sequence as set forth in SEQ ID NO:08 according to Claim-6~~ or a complementary sequence thereof, wherein said nucleic acid encodes a glycosyl sulfotransferase.

9. (Currently Amended) An expression cassette comprising a transcriptional initiation region functional in an expression host, a nucleic acid comprising a nucleotide sequence ~~found in the nucleic acid~~ according to Claim 5, Claim 6, or claim 7 under the transcriptional regulation of said transcriptional initiation region, and a transcriptional termination region functional in said expression

host.

10. (Original) A cell comprising an expression cassette according to Claim 9 as part of an extrachromosomal element or integrated into the genome of a host cell as a result of introduction of said expression cassette into said host cell.

11. (Original) The cellular progeny of the host cell according to Claim 10.

12. (Currently Amended) A method of producing a glycosyl sulfotransferase polypeptide, said method comprising:

growing a cell according to Claim 10, whereby said glycosyl sulfotransferase polypeptide is expressed; and

isolating said glycosyl sulfotransferase polypeptide substantially free of other proteins.

13.-57. (Withdrawn)

-- 58. (New) The nucleic acid of claim 5, wherein the GST-4 polypeptide catalyzes the transfer of a sulfate group from a donor to a selectin ligand.

59. (New) The nucleic acid of claim 58, wherein the selectin ligand is an E-selectin ligand.

60. (New) The nucleic acid of claim 58, wherein the selectin ligand is a P-selectin ligand.

61. (New) The nucleic acid of claim 58, wherein the selectin ligand is an L-selectin ligand.

62. (New) The nucleic acid of claim 61, wherein the L-selectin ligand is selected from GlyCAM-1, CD34, MAdCAM-1, Sgp200, and podocalyxin.

63. (New) The nucleic acid of claim 5, wherein the GST-4 polypeptide comprises an amino acid sequence that is at least 90% identical to the amino acid sequence set forth in SEQ ID NO:08.

64. (New) The nucleic acid of claim 5, wherein the GST-4 polypeptide comprises the amino acid sequence set forth in SEQ ID NO:08.

65. (New) The nucleic acid of claim 6, wherein said nucleic acid comprises a nucleic acid sequence that is at least 85% identical to the nucleotide sequence of SEQ ID NOs:01, 02, 03, 04, or 10.

66. (New) The nucleic acid of claim 6, wherein said nucleic acid comprises a nucleic acid sequence that is at least 90% identical to the nucleotide sequence of SEQ ID NOs:01, 02, 03, 04, or 10.

67. (New) The nucleic acid of claim 6, wherein said nucleic acid comprises a nucleic acid having the nucleotide sequence set forth in any one of SEQ ID NOs:03, 04, and 10.

68. (New) A composition comprising the nucleic acid of any one of claims 5, 6, 7, 58, 63, and 66.

69. (New) A fragment of the nucleic acid according to claim 5, wherein said fragment encodes a polypeptide that comprises a functional domain of a glycosyl sulfotransferase-4.

70. (New) A fragment according to claim 65, wherein said functional domain is selected from a donor binding site and an acceptor binding site. {
